Furaca #CE

AIM :- Preparation of Furaca from 7-ACA by new route

MODIFICATION :-

1) 0.15g EDTA added before 7-ACA addition.
2) 0.15g EDTA added before Reaction mass addition.
3) 25% excess NaSH.

PROCEDURE :-

Stage I

Preparation of TFA

RAW MATERIALS :-

2-Furoyl chloride	: 27.5g	(23 ml).
DMW	: (350 + 15) ml	
NaSH	: 37.5g.	
EtOAc	: 250 ml	
1:1 HCl	: 49 ml.	pH - 0.94.
DMW	: 175 ml.	
$NaHCO_3$	: 20g.	
1:1 HCl	: 44 ml.	pH - 0.95
EtOAc	: 100 ml.	

PROCEDURE :-

1) DMW was charged followed by NaSH at RT.
2) The funnel was washed with DMW.
3) 2-Furoyl Chloride was then added in 40-45' at 20-
4) The mixture was stirred for 5' and Sample given for monitoring.
5) EtOAc was then added and the pH adjusted to 0.9-1.0 with 1:1 HCl in 15-20'.
6) The layers were Separated and OL 1 given for HPLC.
7) To the organic layer DMW was added and the pH adjusted to 7.0 - 7.2 using $NaHCO_3$ in 15-20' at 20-

The mixture stirred for 30' at 20-22°C

8) The layers were Seperated. To the aqueous layer EtoAc was added the pH adjusted to 0.9 - 1.0 using 1:1 HCl.

9) The layers were seperated and the organic layer (OL_3) taken for next stage after a sample was given for HPLC.

Reaction monitoring

	TFA	Imp.
	99.51	-
OL_1	98.17	1.06
OL_3	96.50	1.98

Observations

OL_1 - 250 ml AL_2 - 230 ml OL_3 - 130 ml

Stage II

Preparation of Furaca

RAW MATERIALS

7-ACA	: 50.0 g.
EtoAc	: 200 ml.
GAA	: 30 ml
BF_3	: 68.5 g
TFA	: 130 ml.
DMW	: 150 ml.
EDTA	: (0.15 + 0.15) g.
SHS	: 1.0 g
20% NH_3	: 87 ml
DMW	: (50 + 150 + 50) ml. (Spray + Slurry + Spray)
~~EtoAc~~	: ~~(50 + 150 + 50) ml~~ (~~Spray + Slurry + Spray~~)

PROCEDURE:-

1) EtoAc and GAA were charged and the temperature lowered to 0°c.

2) BF_3 was then purged at 15°c.

3) EDTA was then added.

4) The mixture stirred for 5'

0.36%
99.57%

5) 7-ACA was then charged followed by TFA and the mixture stirred till the completion of the reaction.

6) DMW was cooled to 15°C seperately.

7) After completion of the reaction, EDTA was added followed by the to DMW. Reaction mass was then charged followed by SHS.

8) The pH was then adjusted to 3.5 in ~~40~~ 45' using 20% NH_3. at ~~25~~ 35°C

9) The mixture was stirred for ~~3~~0' at ~~25~~ ~~25~~°C. 20-25°C

10) The product was filtered and washings with DMW ~~were~~ given.

Reaction monitoring.

	7-ACA	Furaca	TFA	Imp.
45'	9.31	72.77	16.38	0.24
1 hr 45'	1.75	87.2	8.67	0.33
2 hr 15'	0.91	88.77	7.84	0.33

wet wt : 116.8 g.

This FURACA is used for CFUR # 05